

REMARKS

The status of the claims is as follows:

Original:	1-16
Currently amended:	18 and 20
Previously presented:	None
Canceled:	17 and 19
Withdrawn:	None

Claims 1-16, 18 and 20 will be pending with entry of this amendment.

The specification has been amended on page 1 to update the priority claim.

Recitation directed to prevention has been removed from claim 18, and recitation directed to inhibition and prevention has been removed from claim 20.

Claims 17 and 19 have been canceled.

The above-described claim amendments and claim cancellations are made without prejudice; i.e., Applicants reserve the right to reinstate the removed subject matter or to pursue it in one or more continuing applications.

No new matter has been introduced by any of the changes to the specification and claims.

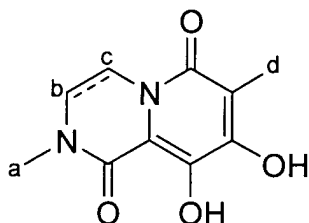
Restriction Requirement

The Examiner has required restriction under 35 U.S.C. §§ 121 and 372 to one of Groups I to XX listed on pages 2 and 3 of the Office Action. Group IV is hereby elected with traverse. The Examiner has also required an election of species and identification of the claims encompassing the species. The compound of Example 2 is elected. All of the pending claims (i.e., claims 1-16, 18 and 20) read on the elected species.

The instant application is a national stage application of a PCT international application and thus unity of invention practice is applicable (see, e.g., MPEP § 1893.03(d)). Accordingly, a restriction requirement is proper if and only if the national stage application lacks unity of invention (see, e.g., 37 C.F.R. § 1.499). Unity of invention practice is set forth in PCT Rules 13.1 and 13.2. Under Rule 13.1 an international application can include more than one invention provided the inventions are so linked as to form a single general inventive concept. Under Rule 13.2 a single general inventive concept exists when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. The term "special technical features" refers to the technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.

The Examiner has asserted that Groups I-XX are not so linked as to form a single general inventive concept under PCT Rule 13.1. Contrary to the Examiner's assertion, the instant application complies with the requirement for unity of invention. The compound claims are Markush claims wherein the claims define chemical alternatives. The requirement of PCT Rule

13.2 that the inventions have the same or corresponding special technical features is met by Markush claims when the defined alternatives are of a similar nature. Chemical Markush groups are of a similar nature when all of the compounds have (A) a common property or activity and (B) a common structure, wherein a common structure is present when a significant structural element is shared by all of the compounds. See MPEP, Appendix AI, Annex B, Part 1, section (f). As disclosed in the specification of the subject application, the claimed compounds share a common activity; i.e., they are HIV integrase inhibitors useful, e.g., in the treatment of HIV infection (see, e.g., page 3, lines 3-4 and page 114, Examples 49 and 50 in the specification). The compounds also have a common structure; i.e., all of the compounds are dihydroxypyridopyrazine diones. More particularly, all of the compounds have the following common core:



Common Core

wherein a and d represent points of attachment of various monovalent chemical groups, b and c represent either points of attachment of various monovalent chemical groups or points of attachment of an additional fused ring, and the dashed line between b and c denotes a single or double bond. Clearly all of the claimed compounds share a significant structural element, and thus all of the claimed compounds have the same or corresponding technical feature required by PCT Rule 13.2. Accordingly, unity of invention exists among all of the compound claims. Furthermore, the composition, combination and method claims all depend from claim 1 and thus all have as a special technical feature a compound of Formula I. There is therefore a special technical feature in common for all of the claims (namely a compound of Formula I), and thus all of the pending claims are linked to form a single general inventive concept and the subject application meets the requirement for unity of invention.

Applicants particularly disagree with the distinction drawn by the Examiner between Groups I and V, II and VI, III and VII, and IV and VIII, because the compounds of Formula II in claim 9 and the species listed in claim 15 are all within the genus defined by Formula I in claim 1. Compounds of Formula I falling within Group IV and compounds of Formula II falling within Group VIII have the common core noted above and additionally have the same or similar substituents and substituent patterns at points a, b, c and d of the common core. Very clearly then, compounds of Groups IV and VIII have the same or similar special technical feature and have unity of invention. The same applies to Groups I & V, II & VI, and III & VII.

Irrespective of the question of unity of invention, there would be no serious burden placed on the Examiner in conducting a search and examination of Groups I-XX in the same application. As noted above, all of the claimed compounds have the same structural core, and it is both practical and eminently sensible to search all of the compounds in a single application,

because any reasonably comprehensive search for information relevant to one group of compounds with this core would inevitably require a search of and result in information relevant to compounds with the same core but pigeon-holed in different groups. The same reasoning applies with respect to the claims directed to compositions, combinations, and methods of treatment; e.g., a comprehensive search and examination of a method of using a compound would retrieve information concerning the compound per se and vice versa. Simply put, there would be so much overlap in the searches that it would be far more efficient to conduct a single search in one application than to conduct separate but similar searches in a series of applications. The claimed compounds and their compositions and uses can be searched efficiently and at all once via commercial databases (e.g., Chemical Abstracts and Registry on STN). In particular, given their well-defined common core, the compounds can be searched without undue difficulty using the sub-structure search capability available on, for example, STN. There is no undue burden.

In particular, there is no undue burden in conducting a search and examination of Groups IV and VIII in the same application. Not only do the compounds have the same structural core but also have the same or similar substituents and substituent patterns. Furthermore, the compounds of Group VIII are encompassed by Group IV. There is no question that information retrieved in a search of Group IV would at the least be of interest as technical background with respect to Group VIII and vice versa. Any perceived extra burden arising from a combined search of both groups in a single application is more than outweighed by the gain in administrative efficiency achieved by avoiding the search and examination of these structurally related compounds in separate applications. The same analysis applies with respect to Groups I & V, II & VI, and III & VII.

In view of the above remarks, withdrawal of the restriction requirement is requested.

Respectfully submitted,

By: Kenneth R. Walton
Kenneth R. Walton, Reg. No. 32,951
Attorney for Applicants
MERCK & CO., Inc.
P.O. Box 2000
Rahway, New Jersey 07065-0907
Tel.: (732) 594-3462

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